

Making a mortise and tenon joint on The JDS Multi-router

This is a step by step guide to use the JDS multi-router to build a mortise and tenon joint.

There is a lot of variation on this joint and I will only cover basic information. I use standards I have used over the years as a production woodworker.

Start by cutting all the parts. For this demonstration I used 1 and 1/2" X 1 and 1/2" leg stock and 3/4" x 4" apron stock. **All parts must be cut accurately to length and square.**

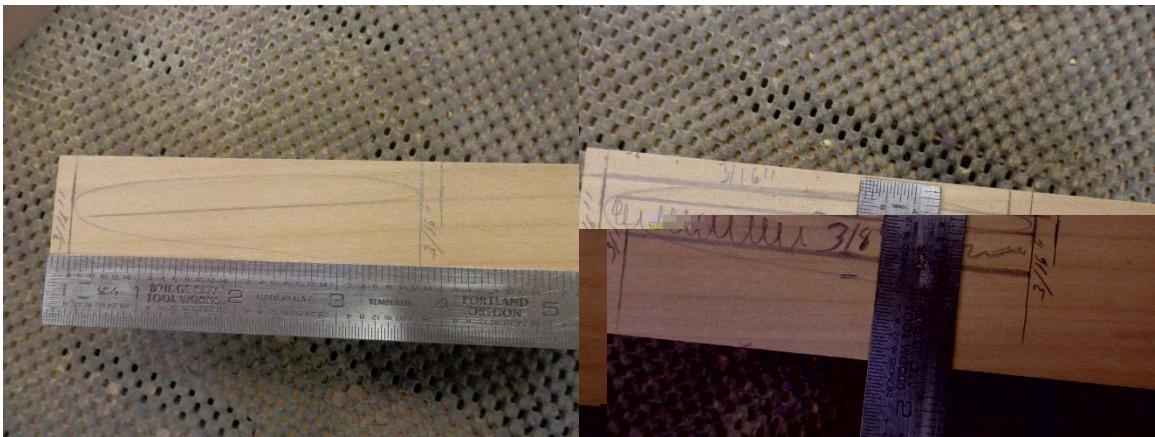
Mark all face sides and where the mortises will be.



Set up for mortise.

The mortise is always cut first and the tenon will be fit to the mortise.

Measure and mark to cut the mortise. Locate where on the leg you want the apron to fall. Mark a line 3/16" from OD of apron on both sides of apron. Layout for the tenon to land at desired location from edge. The demonstration is 3/16" from edge. Add the 3/16" plus 3/16" of cheek on the apron from the actual tenon. The mortise will be 3/8" from the edge of the leg.



Set up the multi-router. Use a 3/8" bit for this demonstration. Set stops on table. Use fence on the table. Set depth of cut +3/4". Mark pieces and use the table as a reference so all work maintains a standard reference. If you keep one face as a standard it often does not matter if there are discrepancies in the material. Set height and throw. I use a six inch rule to make everything as accurate as possible.



Use a test piece to check accuracy of all measurements. **Be sure to lock all travels that need locked and stops set tight so they can't be moved.**

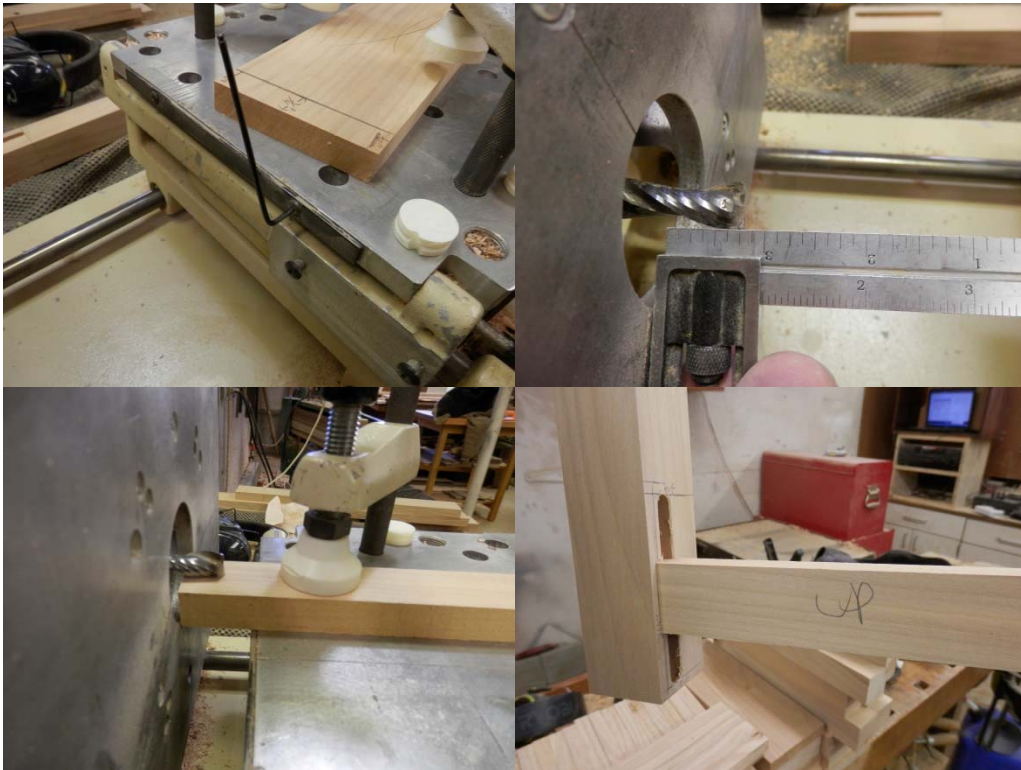
After all measurements are checked go ahead and cut the mortises. On a normal table you can cut one mortise on each leg. The next step will cut the opposing mortise in each leg.

Set up the stops to cut the opposing mortise in the leg. The height will remain static. The white plug stop will be moved and the throw stops will need to be changed.



Making the tenon.

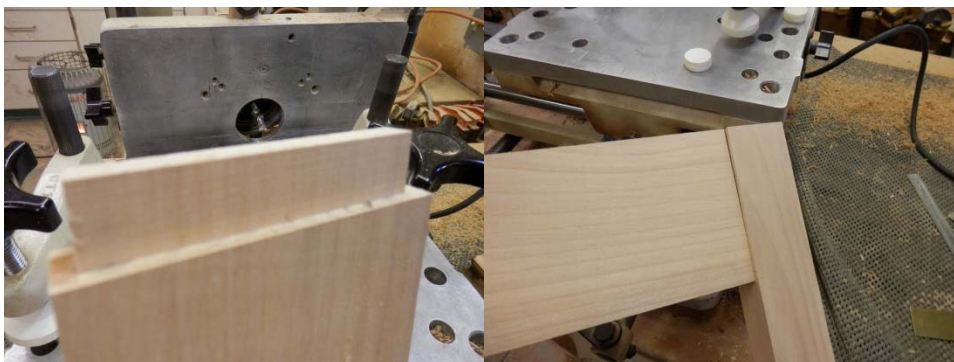
Set up depth of cut. The face table will be the reference for the tenon. Be sure all aprons are the same length and the $\frac{1}{2}$ " bit extends exactly the length you want for a tenon. In this case it will be $\frac{3}{4}$ ". Place the bit on top of apron. Drop the bit $\frac{3}{16}$ ". Do the same to set the bottom. Place the bit on the bottom and bring the bit up $\frac{3}{16}$ ".



You will be cutting a small piece off of the top and bottom of the apron cheek so it fits into the smaller mortise.

Check depth of cut and thickness of the tenon (the numbers don't mean as much as the actual fit)

I like to have a fit I can press (not force) in by hand and have the leg tight enough that it doesn't fall off under its own weight. Always do a dry cut so you are certain you are not cutting into the table!



Box Joint made with JDS Multi-router template

This is a guide to making a box joint using the template system on the JDS Multi-router.

Start with all your pieces cut to thickness, width and length. It is important to have square ends. Remember if you are building a drawer to add $1/16''$ to length so it will not be sanded small when the drawer is finished.

Set up the template guide and template. There are three sizes available for box joints, $1/4''$, $3/8''$, $1/2''$. We are doing this example with $3/8''$. It is important to use a bit that is accurate to the size you are using. If the bit has been sharpened it will not be an accurate bit.

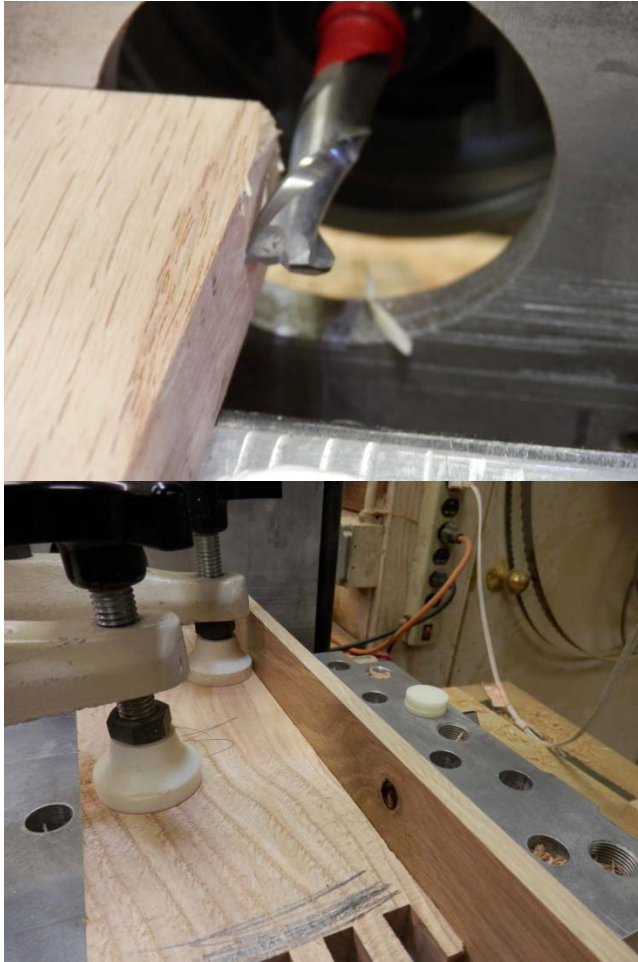


Set depth of cut.



Set up the template. There is at least a couple of ways to accomplish the zeroing of the template.

You want the first pin to not get cut. Set the template so the bit barely touches the wood. I did a test cut and figured what the first pin measured. It was undersized so I made a spacer to make up the difference between what the pin actually measured and what it should measure .375". The alternative is to slide the template to the exact location. If you own the machine and want to set it up so the box joint can be done regularly this is not the best option.



Cut these parts (I will call these the front and back).

Cut the sides. It is time to note that if the parts equal a measurement divisible by the size of the cutter you can just flip the parts so you will not have to build another spacer. (If the parts equal 3" then 3/8" divides evenly).

I added a 3/8" spacer to the first spacer. (you can build separate accurate spacers).



The box joint is ready to assemble.

